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Book Reviews

ANEUPLOIDY. PART A: INCIDENCE AND ETIOLOGY. Edited by Baldev K. Vig and Avery A. Sandberg. New York, Alan R. Liss, Inc., 1987. 434 pp. $140.00.

This book, which is Volume 7A in a series entitled "Progress and Topics in Cytogenetics," is a collection of papers exploring topics in aneuploidy ranging from higher plants and *Drosophilia* to humans. The book is divided into two major sections—one on the incidence and the other on the etiology of aneuploidy.

The first half deals with the incidence of aneuploidy in humans, rodents, farm animals, *Drosophilia,* and plants. These papers illustrate the great difference in the natural occurrence of aneuploidy among these groups. Man is the only mammal in whom the occurrence of nondisjunction leading to aneuploidy seems to be related to maternal age. It appears to be universal in animals, however, that sex chromosome aneuploidies are better tolerated than autosomal aneuploidies. After a reading of the various articles in this section, two questions are raised in the reader's mind. The first is why such vast differences exist from one organism to the next; the second is why some chromosomes are more susceptible to meiotic rearrangements than others. The answers to these questions require a better understanding of the etiology of aneuploidy.

The second half of the book deals with the etiology of aneuploidy by exploring both mitosis and meiosis. The article on the mitotic apparatus emphasizes that every component of the apparatus is a candidate for a malfunction leading to aneuploidy. Moreover, external factors (i.e., drugs or radiation) can interfere with the mitotic process. In the section on meiosis, these factors, as well as a variety of others, are discussed. Among the topics included are premature centromere division, displacement of chromosomes from the spindle apparatus, and multivalence, which is the association at meiosis of two or more chromosomes which are not fully homologous. The last paper in the volume deals with the recent exciting discovery of a region in the yeast chromosome that is essential to chromosome segregation. The DNA sequence of the centromere essential sequence (CEN) has been identified and characterized. Since there are similarities in the chromosomal segregation properties of yeast and man, better understanding of the centromeres of yeast chromosomes can provide clues to study of centromeres of higher animals.

The quality and difficulty of the papers in the book vary. For most of them, a strong genetics background is essential, since there is no elaboration of basic concepts. The papers on incidence contain many tables which summarize the data very well. In addition, the photographs and schematic drawings are helpful in visualizing the proposed mechanisms of aneuploidy. Also, each paper offers an extensive list of references. One shortcoming of many of the papers is the lack of a summary, so major concepts are neither highlighted nor reinforced. There is, however, a clear, concise summary at the end of the book, emphasizing the major points in the collection. Both researchers and students with an interest in genetics will find that this volume does a

good job of summarizing older important concepts and of bringing the reader up to date on current research trends in aneuploidy.

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PHARMACOLOGY AND TOXICOLOGY OF PROTEINS. Edited by John S. Holcenberg and Jeffrey L. Winkelhake. New York, Alan R. Liss, Inc., 1987. 381 pp. $70.00.

One of the most promising and practical applications resulting from the enormous advances made in the understanding of molecular structure and biology of proteins is in the area of therapeutics and drug development. While recombinantly produced protein and peptide drugs offer the possibility for extremely specific and potent pharmaceuticals for the modulation of biological responses, the toxicology of only a few of these novel agents has been rigorously studied. This collection of papers from a recent UCLA symposium sponsored jointly by Cetus Corporation is devoted primarily to a discussion of the unique problems now being encountered in the analysis of the pharmacokinetics, metabolism, immunogenicity, and toxicology of proteins and peptides. Specifically, the clinical pharmacology of monoclonal antibodies, interleukin-2, interferons, protease inhibitors, and thrombolytics are examined, as well as novel drug delivery systems particularly suited to these experimental therapies.

Unfortunately, this volume, like so many of these hastily edited collections, is a disparate, incohesive, and largely superficial group of descriptive papers. While there are a few valuable contributions, such as the thorough review of monoclonal antibody therapies for infectious diseases, this book suffers most notably from the lack of papers devoted to toxicological testing of gene products (attributed by one speaker to the concurrent Society of Toxicology Meeting!).

The clinical pharmacology of proteins and peptides represents a fascinating and largely uncharted subject, which will undoubtedly gather increased attention from both the medical and scientific communities as new drugs near clinical trials. This volume, however, serves as neither a balanced review nor an appropriate introduction to this subject. Industrial toxicologists may find their colleagues' discussions interesting and somewhat valuable, but the student or clinician interested in protein therapeutics is advised to continue reading the primary literature for now.

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NEURAL PLASTICITY. A LIFESPAN APPROACH. Edited by Ted L. Petit and Gwen O. Ivy. New York, Alan R. Liss, Inc., 1987. 383 pp. $59.50.

Developmental models have long played a significant role in neurology. Recently, however, there also has been increased interest among biological psychiatrists in the neurodevelopmental processes which regulate the onset, course, and offset of illnesses such as schizophrenia and anxiety disorders. In *Neural Plasticity: A Lifespan Approach,* the thirty-sixth volume in the "Neurology and Neurobiology" series from Alan R. Liss, Inc., leading researchers in the developmental neurosciences review recent progress in three principal areas: *(1)* early cortical development, *(2)* transplantation of neural tissue, and *(3)* senescent developmental changes.